



EXPEDITED PROCEDURE – EXAMINING GROUP 1772

S/N 10/607,733

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Joshua Oen	Examiner:	Alicia Ann Chevalier
Serial No.:	10/607,733	Group Art Unit:	1772
Filed:	June 26, 2003	Docket No.:	884.869US1
Title:	THERMAL INTERFACE APPARATUS, SYSTEMS, AND METHODS		
Assignee:	Intel Corporation	Customer Number: 21186	

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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In response to the Final Office Action mailed August 23, 2005, the Applicant requests review of the final rejection in the above-identified application. No amendments are submitted with this request, which is being filed with a Notice of Appeal, and for the reasons stated below.

§102 Rejection of the Claims

Claims 1-7, 9, 10, 14, 15, 17 and 19-22 were rejected under 35 USC § 102(b) as being anticipated by Dinter et al. (U.S. 5,759,649; hereinafter “Dinter”). Claims 1, 2, 8, 12-14, 16 and 20 were rejected under 35 USC § 102(b) as being anticipated by Crandall et al. (U.S. 5,474,827; hereinafter “Crandall”). Claims 1-5, 7-9, 11, 14-16, 20 and 22 were rejected under 35 USC § 102(b) as being anticipated by Hisanaka et al. (U.S. 6,117,524; hereinafter “Hisanaka”). Claims 1, 2, 4, 9, 14, 15, 18 and 20 were also rejected under 35 USC § 102(b) as being anticipated by Brady et al. (U.S. 6,140,146; hereinafter “Brady”). The Applicant believes there is a clear deficiency in the *prima facie* case in support of the rejections, namely, the Applicant asserts that the Office has not shown that Dinter, Crandall, Hisanaka, or Brady disclose the identical invention as claimed.

It is respectfully noted that anticipation “requires the presence in a single prior reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*”

Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221

USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). “The *identical invention* must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP § 2131 (emphasis added).

First, regarding independent claims 1 and 14 (and claims 2-13 and 15-22 depending from them), it is respectfully noted that Dinter does not teach the existence of “a heat sink,” nor a “unitary layer of electrically non-conductive material” as claimed by the Applicant. While it has been asserted by the Office that a “heat sink” is “atmospheric air outside of the packaging, figure 5)”, the Applicant is unable to find this element in FIG. 5 of Dinter. In fact, the Applicant was unable to find the term “sink” used anywhere within the bounds of Dinter.

Further, the assertion that “atmospheric air” may take the place of a heat sink is incorrect. According to the *Radio Shack Dictionary of Electronics*, 1976-76, a heat sink is “a mounting base, usually metallic, that dissipates, carries away, or radiates into the surrounding atmosphere the heat generated within a semiconductor device.” Thus, since the heat sink radiates into the surrounding atmosphere, the atmosphere itself can not serve as the heat sink. With all due respect, the Office seems to ignore this physical impossibility, which would be readily apparent to one of skill in the art. This same deficiency with respect to a lack of teaching regarding a heat sink is also noted with respect to Crandall, Hisanaka, and Brady. (e.g., see Applicant’s response to the First Office Action, filed June 9, 2005 [hereinafter “Response”], pg. 8, lines 12-15)

While the claims during examination should be interpreted as broadly as their terms reasonably allow, that interpretation must be tempered by the context in which the terms are used. The *Hyatt* court stated that “during examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.” *In re Hyatt*, 211 F.3d 1367, 1372, 54 U.S.P.Q.2D (BNA) 1664, 1667 (Fed. Cir. 2000) (emphasis added) (“During examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.”; citing *In re Graves*, 69 F.3d 1147, 1152, 36 U.S.P.Q.2D (BNA) 1697, 1701 (Fed. Cir. 1995); *In re Etter*, 756 F.2d 852, 858, 225 U.S.P.Q. (BNA) 1, 5 (Fed. Cir. 1985) (en banc).).

The interpretation of “heat sink” proffered by the Office is neither reasonable, nor

consistent with the specification. It is not reasonable because the element “air” is not shown in any of the references, and even if accepted, the interpretation contradicts a dictionary definition that would be accepted by one of ordinary skill in the art. It is also inconsistent with the specification in the Application, which states: “In some embodiments, the apparatus 100 may comprise a heat source 130, such as a circuit, a die, and/or an integrated circuit package, perhaps including a transponder; and a heat sink 120, such as a peltier cooler, a heat spreader, etc.” Application, pg. 3, lines 27-29.

A related deficiency exists with respect to the teachings of Crandall, Hisanaka, and Brady and the Office interpretation of “heat source.” It is not reasonable because the Applicant could not find the proposed heat source as an element of any figures in the cited art (e.g., there is nothing in the cited references to show that the proposed source of heat was at a temperature any higher than that of the surrounding environment). For example, the RFID ICs 114 in roll form shown by Brady are un-powered, and therefore cannot serve as a heat source. In addition, the “packaged product” of Dinter, and the “human” of Crandall and Hisanaka do not constitute an interpretation of “heat source” which is consistent with the written description (see above).

Further, the assertion in the Office Action that Dinter discloses a “heat spreader” as part of the heat sink “since atmospheric air dissipates, i.e. spreads heat” is also unreasonable and inconsistent with the written description. This same deficiency with respect to a lack of teaching regarding a heat spreader is noted with respect to Crandall, Hisanaka, and Brady. (e.g., see Response, pg. 10, lines 3-16, as well as FIG. 1 and related text in the Application)

Second, the inner layer 4 of Dinter is not “a unitary layer of electrically non-conductive material” as claimed by the Applicants; it must be used in conjunction with an electrically conductive intermediate layer 6, otherwise the apparatus of Dinter is rendered non-functional. This is supported by the text of Dinter, where it is noted that apparatus having “additives [that] do not ensure permanent conductivity of the polymer over the entire duration of its intended use” are unsatisfactory. *See* Dinter, Col. 1, lines 27-35. In addition, even the minimal configuration described by Dinter, for use with “less critical products” recites “... a two-layered composite film combination ... in this case, the composite film combination then comprises a polymeric inner layer with perforations and an electrically conductive outer layer, connected to ground

potential.” Dinter, Col. 4, lines 33-40. This same deficiency with respect to a lack of teaching regarding a unitary layer of material is noted with respect to Hisanaka (e.g., see Response, pg. 9, lines 1-5)

Third, the assertion in the Office Action with respect to the size of the openings in the surface of the unitary layer in Dinter is incorrect. Dinter says “the spacing between individual openings lies in a range of between 5 and 30 mm” and “the average diameter of the openings may lie between .2 and 10 mm.” Dinter, Col. 3, lines 14-17. Assuming the largest openings (10 mm) spaced the shortest distance apart (5 mm) provides the greatest surface area coverage, the combined opening area over the surface is substantially less than the 90% amount claimed by the Applicant in claim 6. This same deficiency with respect to a lack of teaching regarding the size of the openings is noted with respect to Hisanaka. (e.g., see Response, pg. 9, lines 13-20).

Fourth, the assertion in the Office Action that Dinter discloses a “thermal interface material” as the container outer layer 8 is also unreasonable and inconsistent. According to an Internet-based encyclopedia, “thermal interface material (aka TIM) is used to fill the gaps between thermal transfer surfaces, such as between microprocessors and heatsinks, in order to increase thermal transfer efficiency. These gaps are normally filled with air which is a very poor conductor.” See http://en.wikipedia.org/wiki/Thermal_interface_material. The definition provided by the Office is not only unsupported, it contradicts that which would be accepted by one of ordinary skill in the art. There is simply no teaching or suggestion by Dinter that the container outer layer 8 can act as a thermal interface material, as claimed by the Applicant in claims 10 and 17. (e.g., see Response, Appendix A, for further information regarding thermal interface material and heat sinks)

Fifth, the assertion in the Office Action that Dinter discloses a “die” as the filling tube 2 is also unreasonable and inconsistent with the written description. According to the glossary in *Microchip Fabrication*, a die is “one unit on a wafer separated by scribe lines . . . ; after all of the wafer fabrication steps are completed, die are separated by sawing” *Microchip Fabrication*, pg. 600, McGraw-Hill, 2000. There is no teaching or suggestion in Dinter that the filling tube 2 is a die, as claimed by the Applicant in claim 19, and described/illustrated in the Application.

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Finally, it is alleged in the Office Action that Brady provides, with respect to claim 1, a unitary layer that comprises a plurality of openings communicatively coupled between the first surface and the second surface. This is incorrect, since only a single aperture 320 is shown for each RFID IC 114. Thus, Brady does not teach a plurality of openings between a first surface adjacent a heat sink, and a second surface adjacent a heat source, as claimed by the Applicant.

Conclusion

Since neither Dinter, nor Crandall, nor Hisanaka, nor Brady teach all of the elements claimed by the Applicant, it is believed that independent claims 1 and 14 (and claims 2-13 and 15-22 that depend from them) are in condition for allowance. Reconsideration and withdrawal of the rejection under § 102 as a result of this Pre-Appeal Brief Request for Review is respectfully requested. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 24th day of October 2005.

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